21. (New) The apparatus of claim 20, wherein the loading station is adjacent the docking station.

22. (New) The apparatus of claim 1, wherein the frame is positioned parallel to the cleanroom wall.

REMARKS

Claims 1-3 and 5-21 are now in this application, claim 4 having been cancelled in this paper and new claims 19-21 having been added. Claims 1-3 and 5-18 stand rejected and are now presented for reconsideration in view of the foregoing amendments and the following remarks.

In accordance with the Examiner's suggestion, claim 16 has been amended to be dependent on claim 15, to overcome the rejection of claim 16 under §112, second paragraph.

Claims 1-3, 6, 11 and 18 were "rejected under 35 USC §102(b) as being anticipated" by the Murata et al. reference.

Claim 1, as now amended, is directed to an "apparatus for storing cassettes", including "a frame positioned adjacent a cleanroom wall". The apparatus of claim 1 further includes "a plurality of cassette storage shelves supported by the frame" and "a cassette mover to carry a cassette between the shelves and a docking station". The cassette mover is recited to include "a support member positioned in front of the shelves and moveable in a path adjacent to the shelves, and an end effector configured to engage the cassette". The end effector is "moveably connected to the support member".

Claim 1, as now amended, further recites that the cassette mover is "supported by the frame", and that the docking station includes "an opening in the cleanroom wall,

the opening being adapted to have a substrate transferred therethrough".

In explaining the rejection of claim 1, and comparing limitations of claim 1 to elements disclosed in the Murata et al. reference, the Examiner referred to "a cassette mover 10 for carrying a cassette between the shelves and a docking station 20/50". In this regard, Applicants respectfully submit that the elements "20/50" of Murata et al. do not constitute a docking station, at least as the term "docking station" is now specified in amended claim 1.

The element 20 in Murata et al. is a "lock/unlock device" which connects a bottom lid of a cassette container to a container body, or disconnects the bottom lid from the container body (see column 2, lines 37-40.) The element 50 (FIG. 8) is a platform that lifts up a bottom lid 40 (with a cassette 2 placed thereon) upwardly so that the bottom lid 40 is positioned to be joined to a container body 30A.

Neither the lock/unlock device 20 of Murata et al., nor the lifting stand 50 constitutes a "docking station" as recited in amended claim 1, which now is specified as "including an opening in the cleanroom wall".[1] Neither the lock/unlock device 20 nor the lifting stand 50 of Murata et al. includes an opening in a cleanroom wall. Thus, the Murata et al. reference fails to satisfy the claimed "cassette mover to carry a cassette between the shelves and a docking station" and it is therefore respectfully submitted that amended claim 1 is patentably distinguished from the Murata et al. reference.

[1] Support for this newly recited feature is found at page 5, lines 10-15 of the specification.

Claims 2, 3, 6 and 11 are directly or indirectly dependent on claim 1 and are submitted as patentable over Murata et al. on the same basis as claim 1.

Claim 18, as amended, is directed to a "method of operating a processing station". The method recited in claim 18 includes "storing a plurality of cassettes on a plurality of storage shelves supported by a frame positioned adjacent a cleanroom wall" with "the shelves being positioned above a docking station". The method of claim 18 further includes "carrying one of the cassettes to the docking station with a cassette mover supported by the frame", "removing a substrate from the cassette", "transferring the substrate through an opening in the cleanroom wall" and "returning the cassette to the cassette storage shelves with the cassette mover".

It is noted that the Murata et al. reference does not disclose the step, now recited in claim 18, of "transferring the substrate through an opening in the cleanroom wall".[2] It is therefore submitted that claim 18, as amended, is patentably distinguished from the Murata et al. reference.

Claims 1-3, 6, 7, 11, 14, 15, 17 and 18 were "rejected under 35 USC §102(b) as being anticipated" by the Iwai et al reference.

It is noted that claim 1 has been amended to recite "a frame positioned adjacent a cleanroom wall" which supports both "a plurality of cassette storage shelves" and "a cassette mover to carry a cassette between the shelves

[2] Support for this method step is found at page 8, lines 11-13 of the specification.

and a docking station".[3] It is respectfully submitted that Iwai et al. reference lacks such a frame as specifically recited in claim 1.

Referring to FIG. 11 of Iwai et al., shelves 151 are supported on a partition wall 154. On the other hand, a vessel transfer 144 is mounted on a guide rail 149 which appears to be mounted on the floor. Accordingly, the apparatus of Iwai et al. appears to lack any frame which supports both cassette storage shelves and a cassette mover as recited in claim 1. It is therefore submitted that the frame as now specifically recited in claim 1 serves to patentably distinguish claim 1 from the Iwai et al. reference. Claims 2, 3, 6, 7 and 11 are all dependent on claim 1 and are submitted as patentable over Iwai et al. on the same basis as claim 1.

Like claim 1, independent claim 14 has been amended to recite "a frame positioned against a cleanroom wall" which supports both "a plurality of cassette storage shelves and "a cassette mover to carry a cassette between the shelves" and docking stations.

As noted above in regard to claim 1, the Iwai et al. reference lacks such a frame as specifically recited in claim 14. Claim 14 is therefore submitted as patentable over Iwai et al. on the same basis as claim 1. Claim 15, which is dependent on claim 14, is also submitted as patentable on the same basis.

In similar fashion, claim 17 has been amended so that the "cassette stocker" recited therein includes "a frame positioned adjacent" an interface wall and supporting "a plurality of shelves" and "a cassette mover", where the

[3] Support for such a frame is found at page 5, lines 20-24 of the specification and in FIG. 3 of the present application.

cassette mover carries a cassette between the shelves, a loading platform and a docking station. Again, no such frame is disclosed in Iwai et al., and amended claim 17 accordingly is submitted as patentable over the reference.

Claim 18, as noted above, now recites "storing a plurality of cassettes on a plurality of cassette storage shelves supported by a frame positioned adjacent a cleanroom wall", with "the shelves being positioned above a docking station". Claim 18 further recites "carrying one of the cassettes to the docking station with a cassette mover supported by the frame". In light of the above discussion of claim 1 relative to the Iwai et al. reference, it will be recognized that the reference fails to disclose storing a plurality of cassettes on cassette storage shelves supported by a frame, and carrying one of the cassettes to a docking station with a cassette mover supported by the frame. Claim 18 is accordingly submitted as patentable over Iwai et al.

Claims 1-3, 6-8 and 11-18 were "rejected under 35 USC §102(a) as being anticipated" by the Fosnight reference.

In regard to this rejection, it is noted that each of the independent claims 1, 14, 17 and 18 now recites a frame positioned adjacent a cleanroom (or interface) wall wherein the frame supports both a plurality of cassette storage shelves and a cassette mover. It is submitted that no such frame is disclosed or suggested in the Fosnight reference. The panels 114 disclosed in Fosnight, on which the shelves 106 are mounted, cannot satisfy the frame as specifically recited in the now pending independent claims, since the panels 14 themselves form a portion of a cleanroom wall, and accordingly are not "positioned adjacent a cleanroom wall" (or positioned adjacent an interface wall). It is therefore submitted that the independent claims 1, 14,

17, 18, as now amended, are patentably distinguished from the Fosnight reference. The other pending claims, which are all dependent on either claim 1 or claim 14, are submitted as patentable over Fosnight on the same basis.[4]

Claims 19-22 have been added to more completely cover the invention. Each of the new claims is directly or indirectly dependent on claim 1 and is submitted as patentable on the same basis as claim 1.

In view of the foregoing, it is submitted that all of the pending claims are in condition for allowance, and passage to issue is respectfully solicited.

Enclosed is a Dugan & Dugan check in the amount of $18.00 to cover the fee for one total claim in excess of 20. Applicants do not believe any other fees are due regarding this amendment. If any additional fees are required, however, please charge Deposit Account No. 04-1696. Applicants encourage the Examiner to telephone Applicants' attorney to discuss the amendment should any issues remain.

Respectfully submitted,

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[4] Among the dependent claims are claims 5, 9 and 10, which are all dependent on claim 1 and are submitted as patentable over Fosnight on the same basis as claim 1. Accordingly, the rejection of claims 5, 9 and 10 under 35 USC §103(a) as being unpatentable over Fosnight does not raise any issues that require further discussion.

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VERSION MARKED TO SHOW CHANGES

In the Claims:

Claims 1, 5, 6, 14 and 16-18 have been amended as follows:

1. (Amended) An apparatus for storing cassettes, comprising:

a frame positioned adjacent a cleanroom wall;

a plurality of cassette storage shelves supported by the frame; and

a cassette mover to carry a cassette between the shelves and a docking station, the cassette mover including a support member positioned in front of the shelves and movable in a path adjacent to the shelves, and an end effector configured to engage the cassette, the end effector movably connected to the support member, the cassette mover being supported by the frame, the docking station including an opening in the cleanroom wall, the opening being adapted to have a substrate transferred therethrough.

5. (Amended) The apparatus of claim [4] 1, wherein the frame substantially fits below the docking station.

6. (Amended) The apparatus of claim 1, wherein a lower end of the support member is slidably connected to [a] the frame.

14. (Amended) An apparatus for storing cassettes, comprising:

a frame positioned adjacent a cleanroom wall;

a plurality of cassette storage shelves supported by the frame, and positioned adjacent [a] the cleanroom wall

above a plurality of cassette docking stations; and

a cassette mover to carry a cassette between the shelves and the docking stations, the cassette mover including a support member positioned in front of the shelves and movable in a plane parallel to the wall, and an end effector configured to engage the cassette, the end effector slidably connected to the support member, the cassette mover being supported by the frame, the docking stations each including a respective opening in the cleanroom wall, the openings being adapted to have a substrate transferred therethrough.

16. (Amended) The apparatus of claim [14] 15, wherein adjacent vertical columns of shelves are separated by a vertical channel, and the cassette mover is configured to transport a cassette to a selected support shelf by moving the cassettes vertically through the channel to position the cassette substantially adjacent and above the selected support shelf, and then horizontally to position the cassette over the selected support shelf.

17. (Amended) A semiconductor processing station, comprising:

a processing system to perform a fabrication step on a substrate;

an interface wall separating the processing system from a cleanroom;

a docking station located in the cleanroom to support a cassette;

an opening in the interface wall;

a wafer transfer robot to transfer the substrate through the opening between the docking station and the

processing system;

a loading platform located in the cleanroom adjacent the docking station; and

a cassette stocker located in the cleanroom, the cassette stocker including,

i) a frame positioned adjacent the interface wall,

ii) a plurality of shelves supported by the frame and aligned in a vertical column above the docking station, and

[ii)] iii) a cassette mover to carry a cassette between the shelves, the loading platform, and the docking station, the cassette mover including a support member positioned in front of the shelves and movable in a path adjacent to the shelves, and an end effector slidably connected to the support member and configured to engage the cassette, the cassette mover being supported on the frame.

18. (Amended) A method of operating a processing station, comprising:

storing a plurality of cassettes on a plurality of cassette storage shelves supported by a frame positioned adjacent a cleanroom wall, the shelves being positioned above a docking station;

carrying one of the cassettes to the docking station with a cassette mover supported by the frame;

removing a substrate from the cassette; [and]

transferring the substrate through an opening in the cleanroom wall; and

returning the cassette to the cassette storage shelves with the cassette mover.